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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/410,520	10/01/1999	STEVEN J. HARRINGTON	XER-2-0279	6975

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EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 10/01/2003

85

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/410,520

Applicant(s)
Steven Harrington

Examiner
Shawn An

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2613



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 21, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-13 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

1. As per Applicant's instructions in Paper 4 as filed on 7/21/03, claims 1-5, 9, and 14-16 have been amended.

Response to Remarks

2. Applicant's arguments with respect to amended claims 1-9 and 14-16 have been considered but are moot in view of the new ground(s) of rejection.

Furthermore, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hay et al (4,238,828) in view of Naimark et al (4,857,902).

Regarding claim 1, Hay et al discloses a method for identifying orientation in a free space of a preselected object from a video camera (Fig. 1, 6), comprising the steps of:

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detecting the object from the image by recognizing relative position of points merely disposed on the objects image within the view plane (col. 1, lines 4-8);

calculating coordinate positions of the points at an object position in free space based upon the relative positions and known camera geometric dimensions (Fig. 4); and

converting the coordinate positions into location of the object (Fig. 8).

Hay et al's object is not the locating device as claimed.

However, Naimark et al teaches a position detecting input device such as a locating device (wand) for generating position displacement (col. 6, lines 13-27).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a method for identifying orientation in a free space of a preselected object as taught by Hay et al to incorporate the locating device such as the wand so as to calculate the position of the points on the locating device's position in free space based upon the relative positions and known camera geometric dimensions, and to convert the coordinate positions into location of the locating device in order to identify the orientation and the position displacement of the locating device.

Regarding claim 2, Naimark et al teaches the locating device for generating position displacement (col. 6, lines 20-27). Therefore, it would have been obvious for the locating device's image to comprise three preselected co-linear points in order to calculate the position displacement.

Regarding claims 3-4 and 14-16, Hay et al discloses a system for identifying a position of a preselected object in a three dimensional free space captured in a video camera (Fig. 1, 6), the system comprising:

frame memory (Fig. 3) comprising a pixel representation of the image;

a processor (Fig. 1, 17) for detecting the relative position of the indicia from the pixel representation (col. 1, lines 4-8), and for computing coordinate positions of the indicia of the object in free space merely based upon the relative positions and known system geometry (Fig. 4),

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wherein the processor includes means for verifying the coordinate positions are consistent with a space positions of the object (Fig. 8).

Hay et al does not specifically disclose identifying a pointing directions of a preselected locating device.

However, Naimark et al teaches a position detecting input device such as a wand (locating device) for identifying a position and pointing directions (position displacement) of a preselected locating device (col. 6, lines 13-27) and an alignment indicator for indicating a pointing direction of the locating device in the free space (col. 3, lines 13-22).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a system for identifying a position of a preselected object in a three dimensional free space as taught by Hay et al to incorporate Naimark et al's means for identifying the pointing directions of the locating device (wand) and comprising an alignment indicator for indicating a pointing direction as a convenient way for an user to interface such as in computer graphics for communicating an input signal.

Regarding claim 5, Naimark et al teaches a wand for communicating a pointing direction (col. 6, lines 13-27), and detecting pixel location on the view plane of beads (corresponding points) on the wand (col. 3, line s 13-36).

Regarding claims 6-7, the Examiner takes official notice that an object detecting camera system typically (conventionally) detects a property of the color such as chrominance, luminance, and/or hue.

Regarding claim 8, the Examiner takes official notice that detecting a center pixel location of an object such as face or bead is well known for calculating a distance between the center and end points and for finding a center of a contour.

Regarding claim 9, Hay et al discloses distance between a view point and a view plane of the camera, and converting the relative positions of the point based on the given distance and the known spacing of the points to an object distance in the free space between the object and the

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plane (Figs. 4 and 8). Further incorporating Naimark et al's locating device would have converting the relative positions of the point based on the given distance and the known spacing of the points to an object distance in the free space between the locating device and the view plane.

Allowable Subject Matter

5. Claims 10-13 are allowed.

6. The following is an examiner's statement of reasons for allowance:

claims 10-13 recite the novel feature of a method for determining a location of a wand, comprising the steps of:

capturing video image of the wand on a view plane of a camera system wherein the image is represented by a memory including relative positions of the beads;

determining centers of the beads on the view plane and relative spacings between the centers; and

calculating coordinate positions of the beads in the free space based upon the relative spacings and known camera system geometries of generating the video image.

The art of record fails to anticipate or make obvious the novel features as specified in these claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday through Friday.

SHAWN G. AN
PATENT EXAMINER

SSA



September 28, 2003